

Unit 5

Day 5

Factoring Using Real Numbers

$$\textcircled{13} \quad 9x^{12} - 13x^6 + 4$$

$$(9x^{12} - 12x^6 + 4) - x^6$$

$$2 \overline{) \begin{matrix} 32 \\ 12 \end{matrix}}$$

$$(3x^6 - 2)^2 - x^6$$

$$(3x^6 - 2 - x^3)(3x^6 - 2 + x^3)$$

$$(3x^6 - x^3 - 2)(3x^6 + x^3 - 2)$$

1)

$$\frac{1}{9}a^2 - \frac{1}{16} =$$

$$\left(\frac{1}{3}a - \frac{1}{4}\right)\left(\frac{1}{3}a + \frac{1}{4}\right)$$

2)

$$\frac{1}{4}x^2 + \frac{2}{5}x + \frac{4}{25} =$$

$$\left(\frac{1}{2}x + \frac{2}{5}\right)^2$$

$$2\left(\frac{1}{2} \cdot \frac{2}{5}\right)$$

$$2 \cdot \frac{1}{5}$$

$$2/5$$

NOTE - we are factoring over Real Numbers, not integers!

3)

$$9m^2 - 8 = (3m + \sqrt{8})(3m - \sqrt{8}) \\ (3m + 2\sqrt{2})(3m - 2\sqrt{2})$$

4)

$$\frac{3}{2}y^2 + \frac{10}{3}y + \frac{2}{3} = \frac{1}{6}(9y^2 + 20y + 4) \quad \frac{3}{18} = \frac{1}{6}$$
$$= \frac{1}{6}(9y + 2)(y + 2)$$

$$\frac{1}{6} \cdot ? = \frac{3}{2}$$

$$\frac{3}{2} \cdot 6 =$$

5)

$$18x^2 - 1 = (\sqrt{18} + 1)(\sqrt{18} - 1) \\ (3\sqrt{2} + 1)(3\sqrt{2} - 1)$$

6)

$$15x^{\frac{4}{3}} + 2x^{\frac{1}{3}} = x^{\frac{1}{3}}(5x + 2)$$

$$x^2 - x = x(x - 1)$$

7)

$$18a^{-5} + 6a^{-3} = 6a^{-5}(3 + a^2)$$

8)

$$2n^{\cancel{1}/2} + 10n^{\cancel{1}/2} + 12n^{\cancel{3}/2} =$$

$$2n^{1/2} + 10n^{-1/2} + 12n^{-3/2}$$

$$2n^{-3/2}(n^2 + 5n + 6)$$

$$2n^{-3/2}(n+2)(n+3)$$

HOMework

WORKSHEET #4 1-6 (top)

Day 5 and 6 WORKSHEET 57-68 (all)

pg. 62: 69-76 (all)